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Corporate Governance Environment, Corporate Debt Maturity Structure and Sustainable Development

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ABSTRACT

Debt financing is one of the most important financing methods for companies, and the optimization of debt maturity structure is an important problem faced by companies in debt financing.The debt ratio of many enterprises is too high, the debt burden is heavy, the unreasonable debt maturity structure of enterprises, short-term borrowing and long-term use and other problems have also become an important obstacle to the sustainable development of enterprises for a long time.The current research on the debt maturity structure is mainly in two aspects. The first is the research on the factors that affect the corporate debt maturity structure.The second is the research on the effect of corporate debt maturity structure.Most of the researches on the factors influencing the maturity structure of corporate debt explain the cause of the maturity structure of corporate debt from macro and micro perspectives.The research on the effect of debt maturity structure discusses the influence of debt maturity structure on corporate governance effect, financial performance, RESEARCH and development ability, investment efficiency, innovation ability and other aspects.In the existing literature, there is not much research on the effect of debt maturity structure on the long-term sustainable development of the real economy. In order to make up for or enrich the research on this aspect, this paper discusses that corporate internal governance factors play a positive role in corporate sustainable development by improving debt maturity structure.It is of theoretical significance and practical value to discuss the mechanism and influencing factors of debt maturity structure in the sustainable development of companies.

Keywords: *Corporate Governance, Debt Maturity Structure, Sustainable Development.*

I. INTRODUCTION

This paper takes the sustainable development of the company as the dependent variable, the internal governance of the company as the independent variable and the debt maturity structure of the company as the intermediary variable. A good corporate internal governance structure can optimize the debt maturity structure, and has a positive impact on the sustainable development of the company. In China's Shanghai and Shenzhen, a-share listed companies as research samples, discusses the content of the research with empirical research method, analyzes the content, the following three aspects. first, the paper system induces and summarizes the existing questions about sustainable development of the company, at home and abroad about the influencing factors of corporate debt maturity structure and debt maturity structure effect of research results, The research topic of this paper is clarified. Secondly, this paper analyzes and empirically studies the impact of debt maturity structure on the sustainable development of companies. Third, this

paper analyzes and empirically studies the internal governance factors of the company through improving the debt maturity structure plays a positive role in the sustainable development of the company.

The purpose and significance of this study are mainly reflected in the following aspects. First, this paper reveals the relationship between the debt maturity structure and the sustainable development of the company, and theoretically analyzes and confirms the effect of the corporate debt maturity structure, that is, the extension of the corporate debt maturity has a positive impact on the sustainable development of the company. Secondly, this paper reveals the way and influence mechanism of debt maturity structure on corporate sustainable development, and deepens the understanding of the relationship between debt maturity structure and corporate sustainable development. Thirdly, this paper verifies that effective internal governance measures can promote the sustainable development of companies by optimizing the maturity structure of corporate debt, and expands the research on corporate governance issues.

II. LITERATURE REVIEW

2.1. Sustainable Development

What is Sustainable Development? The most widely accepted definition is a concise and creative description. "Humanity has the ability to make development sustainable—to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations General Assembly, 1987, p. 43). This definition is simple and creative, but it clearly emphasizes the full and rational use of existing resources to achieve the objectives of the entity without undermining the conditions for its future development. Sustainable development is generally divided into three categories, which respectively refer to the sustainable development of society, economy and environment (Basiago, 1998). This paper mainly discusses sustainable economic development. The University of Mary Washington defines sustainable economic development. "Economic sustainability refers to practices that support long-term Economic growth without impacting the social, environmental, and cultural aspects of the community". Thus, economy is a concept about resources and values, which is used to define and explain the current value of resources. And how to make the most of it to continue to create maximum value in the future. Sustainable development is a system project, which is affected by many factors.

2.2. Debt maturity structure

The debt maturity structure of a company is measured as the ratio of the company's long-term debt to total debt. Following accounting conventions, the long-term debt is defined as debt maturing in more than one year, while short-term debt is defined as debt due within the next twelve months (Barclay, Michael, Clifford &Smith 1995). Debt maturity structure mainly discusses the determinants and consequences. Based on the existing research literature, the debt maturity structure mainly discusses the determinants including external factors and internal factors, and the external factors are divided into macro environmental factors and industry factors. The macro environmental factors include the country's macroeconomic factors, legal system, tax system, financial system and the degree of opening to the outside world, etc., which affect the choice of corporate debt maturity and the operation environment, execution mode, transaction cost, agency cost and so on of the subsequent debt contract (PHAN, 2020). Industry also has an important influence on the choice of corporate debt maturity structure. Due to the differences in the degree of competition, asset risks, asset types and external capital needs of enterprises in different industries, their debt maturity structure will also be different (Erhemjamts, Raman&Shahrur,2010). The company's own factors have a more direct influence on the decision of debt maturity structure. These factors include financial characteristics, credit rating, corporate risk, growth, management characteristics, ownership structure, government regulation and political connections, and external audit quality. The company with high and low ratings have a shorter debt maturity and the company with medium ratings have longer debt maturity structure. Liquidity risk shows a negative association with longer debt maturity structure (Sajjad & Zakaria, 2018).

2.3. Debt maturity structure has an impact on company's sustainable development

The above is a simple review of corporate sustainable development and corporate debt maturity structure. This paper believes that debt maturity structure has an impact on the long-term sustainable development of the real economy,

and increasing the proportion of long-term debt is conducive to the long-term sustainable development of the company.

First, a longer debt maturity structure is conducive to providing a stable cash flow for the company, so that the company's scientific and technological innovation activities can be carried out smoothly. The uncertainty of cash flow brings more risks than opportunities, and its impact on enterprise innovation is mainly reflected in the inhibition effect. That is to say, the greater the uncertainty of cash flow, enterprises are more inclined to reduce innovation input, thus inhibiting the improvement of innovation ability(Qu,2020).Enterprises to research and development, as a kind of innovation investment, compared with no or less research and development activities of the enterprises to use more debt, for research and development intensive enterprises, companies tend to issue equity investment for innovation, it is the enterprise innovation investment and debt financing, there may be a nonlinear relationship between innovation investment companies tend to long-term debt (Gu&Mao,2014).

Second, from the perspective of corporate balance sheet matching, a longer debt maturity structure is conducive to alleviating maturity mismatching of assets and liabilities, avoiding liquidity risks and operational risks, and promoting sustainable development of the company. Companies should match the maturity of their assets and liabilities to reduce the risk that the cash flow generated by the company's assets may not be sufficient to meet interest and investment needs(Brunnermeier, Markus, &Martin,2013).According to the term matching principle, the company should match the maturity of its assets and liabilities, so as to reduce the risk that the cash flow generated by the company's assets may not be sufficient to meet the interest and investment needs(Morris,1976).Enterprises should match the maturities of assets and liabilities, with long-term liabilities applied to long-term assets and short-term liabilities applied to short-term assets. IN the process of going concern, if long-term liabilities are due and assets are due for renewal, the company will have the opportunity to invest in new project opportunities with sustainable development space (Myers, 1977).

Third, a company's willingness to take risks affects its sustainable development level. The extension of the debt maturity structure is conducive to the company to deal with the fluctuation of revenue, performance and cash flow more easily, and is willing to adopt higher risk strategies and assume higher risk levels(DIAMOND & HE,2014).A company to carry out innovation activities require higher money for product development, market development, strategic planning, etc., have capital takes up much, long turnover period, project risk is high, the great uncertainty, high level of risk bearing companies are more likely to make the strategic investment, so as to enhance the long-term competitiveness of the company, its market value and resource allocation efficiency will improve. Risk management and risk-taking capacity are the most obvious drivers of value creation associated with a project's value capture mechanisms (Andersen &Roggi, 2012).

4. Internal governance measures to promote sustainable development

Internal governance measures can promote the sustainable development of the company by changing the characteristics of the maturity structure of the company's debt. The relevant literature is mainly reflected in the following four aspects.

First, the governance effect of equity checks and balances. The governance effect of equity checks and balances affects the agency problem, the system of creditor protection and environmental issues, and thus the debt maturity structure, and ultimately the sustainable development level of the company. The second largest shareholder, with a higher shareholding ratio, can play a more active supervisory role, restrict the ultimate controller's encroachment on the company's resources and reduce the agency cost of the company (Boubaker & Sami, 2011). When company ownership balance degree rise, the company is able to alleviate the problem of agency, by shortening debt maturity structure the necessity to solve the problem of principal-agent, companies are more inclined to long-term stable source of funding, so in theory, the degree of ownership balance and corporate debt maturity structure is closely related to the sustainable development level and the company.

Second, the management effect of shareholding overview of the protection of creditors, improve the long-term debt maturity structure, improve the level of sustainable development of the company. When the shareholding ratio of

managers is low, with the increase of the shareholding of managers, the interests of management and shareholders tend to be consistent, and the agency conflict between management and shareholders can be alleviated.

Third, the governance effect of board independence affects the debt maturity structure of the company, and ultimately has an impact on the sustainable development level of the company. Since there is no significant interest correlation or conflict between independent directors and the company, they can better coordinate the interests of managers and shareholders, improve the efficiency of supervision, and reduce the agency cost of the company. Independent directors, as non-interested directors, exist in the board of directors to conduct independent inspection on the management and represent the interests of shareholders in the affairs of the investment company (Clarke, 2007).At the same time, due to the professional knowledge and external resources of independent directors, they can often more effectively improve the governance effect of the board of directors. At the same time, independent directors can minimize the agency cost between shareholders and managers, thus improving the operation and management effect of the company and reducing the agency cost (Zubeltzu-Jaka, Ortas& Álvarez-Etxeberria, 2019).

Fourth, the governance of institutional investors affects the debt maturity structure, thus influencing the sustainable development level of the company. Institutional investors usually have more professional knowledge, more comprehensive information and more rational analysis, so their ability to implement supervision is stronger, which helps to improve the level of corporate governance. Institutional investors can promote the level of corporate governance to improve corporate performance, especially domestic research generally support the positive role of institutional investors in corporate governance (OECD, 2011).

III. HYPOTHESES DEVELOPMENT

Existing literature has confirmed that the corporate debt maturity structure has an important influence to the development of the company's operating, it can not only influence the company's financing needs, financing costs, directly related to debt repayment plans and so on, but also indirectly affect the company's agent cost, management incentive, creditor rights and interests, as well as the company's business risk and other issues. Based on the above two literatures, it can be logically inferred that the debt maturity structure can affect many factors in the financial and operational aspects of the company, and these factors will have an impact on the sustainable development of the company. Therefore, this paper argues that a longer period of debt maturity structure, weakened the company's debts and capital source of uncertainty and liquidity shocks, a longer period of debt maturity structure makes the company to more fully use of financial freedom, more reasonable asset allocation and portfolio according to the production and operation, Companies should promote long-term sustainable development by improving the efficiency of asset allocation. Longer debt maturity structure reflects the company's creditors of the company's long-term solvency in anticipation of a trust and good prospects for development also said the company creditors and other stakeholders can make reasonable contract arrangement based on long-term interests relation, the stability, good contractual relationship is beneficial to the company based on sustainable development objectives to build production and management mechanism, These factors are conducive to promoting the sustainable development of the company. Therefore, this paper puts forward the first hypothesis. H1. Corporate debt maturity structure is positively correlated with the sustainable development level of listed companies.

In this paper, the debt maturity structure plays an important role in the sustainable development of a company in the following three ways. First, a longer debt maturity structure is conducive to providing stable cash flow for the company, so as to provide continuous financial support for the company's scientific and technological innovation activities. H1a.The proportion of long-term debt in the debt maturity structure keeps rising to promote the sustainable development of the company by increasing the level of R&D expenditure.

From the perspective of the matching of assets and liabilities of the company, a longer debt maturity structure is conducive to changing the low proportion of long-term debt of the company, which has a serious mismatch with the maturity of assets, so as to avoid liquidity risks and operational risks and promote the sustainable development of the

company.H1b. The proportion of long-term debt in the debt maturity structure keeps rising to promote the sustainable development of the company by reducing the level of Maturity mismatching of assets and liabilities.

The increasing proportion of long-term debt in the debt maturity structure is conducive to the company to deal with the fluctuation of revenue, performance and cash flow more reasonably, and to improve the risk level of the company.H1c. The proportion of long-term debt in the debt maturity structure keeps rising to promote the sustainable development of the company by improving the company's risk bearing level.

The literature fully describes that a longer debt maturity structure is conducive to the sustainable development of companies. The next question is which factors or mechanisms can make the debt maturity structure longer and thus promote the sustainable development level of the company by improving the debt maturity structure. This should be analyzed from two aspects. First, the severity of the management agency problem and the shareholder agency problem. Second, the system of creditor protection and environmental issues. Corporate internal governance measures are likely to have a positive impact on the above two aspects of the problem, so as to improve the financing capacity of long-term debt, improve the proportion of long-term debt in the debt maturity structure, and promote the level of sustainable development of the company.H2. The optimization of the company's internal governance structure can improve the proportion of long-term debt in the debt maturity structure, and promote the sustainable development of the company through the change of the debt maturity structure. The theoretical framework of the paper is shown in the figure below.

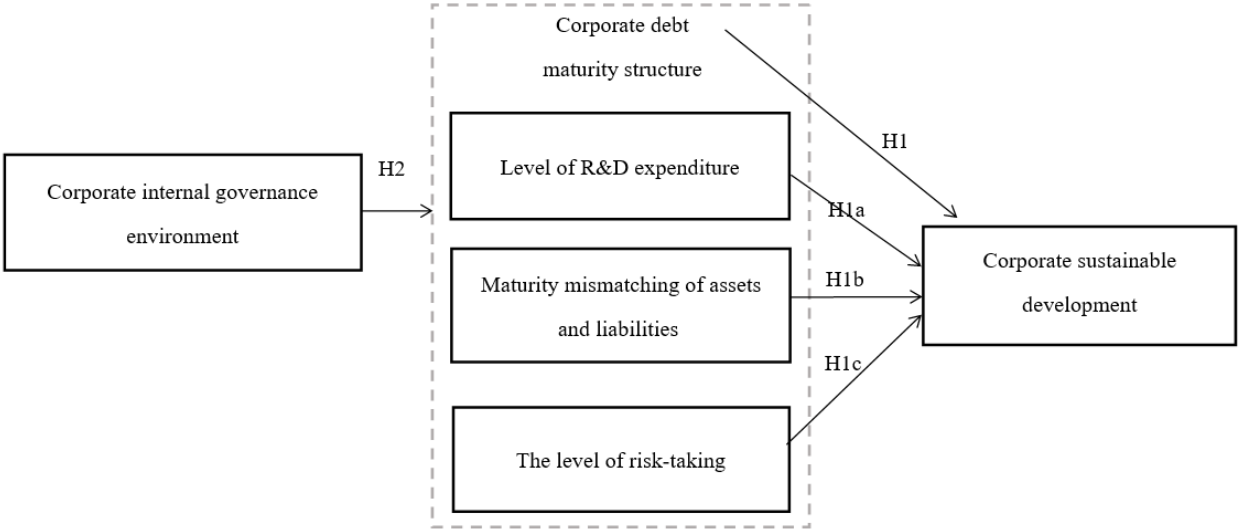

Figure 1. Hypothesis model

IV. RESEARCH METHOD

This paper is quantitative research, taking the A-share listed companies in Shanghai and Shenzhen as the research samples, and using the method of empirical research to carry out quantitative research on the hypothesis of the problem. In terms of empirical research, 1,498 non-financial A-share companies listed in Shanghai and Shenzhen stock markets from 2009 to 2020 are taken as samples. Panel data research method is used to test the correlation between them, and it is confirmed that there is a positive correlation between the extension of corporate debt maturity structure and the sustainable development level of the company. For the analysis of corporate internal governance factors through the impact of debt maturity structure, so as to affect the sustainable development of the company. With the same research sample, the intermediation effect test method is used to verify the mechanism of the shareholding checks and balances, managers' shareholding level, board independence and institutional investors' shareholding level in corporate internal governance through debt maturity structure.

1. Variable selection and definition

The dependent variable is the company's sustainable development. The static model of Van Horne (1998) is used to calculate the indicators of sustainable development (Van Horne, 1987). The calculation formula of Sustainable

Growth Rate (SGR) is as follows.

$$SGR = \frac{M \times (1 - D) \times \frac{A}{E}}{\frac{A}{S} - M \times (1 - D) \times \frac{A}{E}}$$

M is net profit margin from sales, D is cash dividend payout ratio, A is total assets, E is shareholders' equity, and S is sales revenue. All these data can be obtained from the sample data after proper processing. In order to facilitate the observation of regression results, the natural logarithm of the sustainable development indicators calculated in the actual regression is taken in this paper.

The independent variables are the corporate debt maturity structure (DMS) and the observed variables used to reveal the debt maturity structure, including level of R&D expenditure(LRDE), Maturity mismatching of assets and liabilities (MM) and the level of risk-taking(RISKT).Corporate debt maturity structure (DMS) chooses the proportion of long-term debt to total debt as the measure of debt maturity structure(Demirgüç-Kunt& Maksimovic,1999).The level of research and development expenditure of the sample companies was measured by the ratio of R&D expenditure to revenue. The mismatch level of the company's balance sheet is measured by the difference between fixed assets and long-term liabilities plus equity divided by total assets. The formula is as follows.

$$MM = \frac{FA-(FL+E)}{A}$$

FA represents fixed assets, FL represents long-term liabilities, E represents owners' equity and A represents total assets.

The risk bearing level adopts three indexes of different levels, such as enterprise market share, operating gross profit rate and cash ratio, to conduct principal component analysis, construct the principal component comprehensive evaluation function, and calculate the single index of the enterprise's overall risk bearing ability.

$$BMS = \frac{BR}{BI}$$

BMS represents Business market share, BR represents business revenue, BI represents business industry.

$$OM = \frac{OR - OC}{OC}$$

OM represents Operating margin, OR represents Operating revenue, OC represents operating costs.

$$CR = \frac{COH}{TA}$$

CR represents Cash ratio, COH represents cash on hand, TA represents total assets.

2. Regression model

In order to verify H1, the following regression analysis model is designed in this paper.

$$SGR = \alpha_0 + \alpha_1 DMS + \alpha_2 MM + \alpha_3 LRDE + \varepsilon$$

$$SGR = \alpha_0 + \alpha_1 DMS + \varepsilon$$

α_1 Represents the correlation between the debt maturity results and the sustainable development of the company, ε is the error term. In order to test whether the R&D expenditure level is the mechanism of debt maturity structure affecting the sustainable development level of the company, the following regression analysis model is designed.

$$SGR = \beta_0 + \beta_1 DMS + \beta_2 LRDE + \beta_3 DMS \times LRDE + \varepsilon$$

The symbolic direction and significance level of the coefficient measure the effect of R&D expenditure level. If the coefficient of is significantly positive, it indicates that the increase of R&D expenditure can strengthen the debt maturity structure, and the positive correlation between R&D expenditure and the sustainable development level of the company is strengthened.

In order to test whether the increase of debt maturity structure can promote the sustainable development of the company by reducing the mismatch level of the company's balance sheet, a model is constructed.

$$SGR = \gamma_0 + \gamma_1 DMS + \gamma_2 MM + \gamma_3 DMS \times MM + \varepsilon$$

The sign direction and significance level of the coefficients measure the effect of reducing the balance sheet mismatch value. It can judge whether the increase of debt maturity structure can improve the sustainable development level of the company by reducing the mismatch level of the balance sheet. If the coefficient of is significantly negative, it indicates that the decline of the balance sheet mismatch level strengthens the debt maturity structure value, and there is a positive correlation between the balance sheet mismatch level and the sustainable development level of the company.

In order to test the effect of risk bearing level on the effect of corporate debt maturity structure on corporate sustainable development, this paper constructs the following model.

$$SGR = \delta_0 + \delta_1 DMS + \delta_2 RISKT + \delta_3 DMS \times RISKT + \varepsilon$$

The symbolic direction and significance level of the coefficient measure whether the level of risk-taking is the effect of corporate debt maturity structure and the mechanism of promoting the level of sustainable development of the company. If the coefficient of is significantly positive, it indicates that the increase of risk bearing level improves the debt maturity structure, and there is a positive correlation between the risk bearing level and the sustainable development level of the company.

V. RESULT AND DISCUSSION

This paper takes a-share listed companies in Shanghai and Shenzhen as research samples, conducts regression analysis according to the above model, and obtains descriptive statistical results, as shown in Table 1.

		observations	Mean	SD	5 Quartile	25 Quartile	Median	75 Quartile	95 Quartile
DEP V.	SGR	75632	-4.32	1.92	-3.21	-5.85	-5.23	-4.54	-1.32
IND V.	DMS	75632	22.45	24.67	0.00	0.98	14.78	35.98	71.32
	LRDE	75632	10.45	24.54	0.32	0.43	0.86	15.84	53.70
	MM	75632	-0.58	0.43	-0.88	-0.97	-0.57	-0.43	-0.23
	RISKT	75632	0.96	4.38	0.06	0.11	0.89	2.21	2.32

The correlation coefficients of variables are shown in Table 2.

	SGR	DMS	LRDE	MM	RISKT
SGR	1.000				

DMS	0.101***	1.000			
LRDE	0.095***	0.158***	1.000		
MM	-0.006*	-0.085***	-0.102***	1.000	
RISKT	0.009***	-0.045*	-0.032***	0.004*	1.000

* And ** represent statistical significance at the 10%and 5% levels.

It preliminarily verifies the research hypothesis of this paper. debt maturity structure is significantly positively correlated with corporate sustainable development. The level of R&D expenditure is significantly positively correlated with the level of sustainable development of the company, the level of balance sheet mismatch is significantly negatively correlated with the level of sustainable development of the company, and the level of risk taking is significantly positively correlated with the level of sustainable development of the company. These results are consistent with the assumptions of this paper.

In this paper, corporate sustainable development index (SGR) is chosen as the dependent variable. The definition and calculation method of the company's sustainable development indicators are as described above. In this paper, the corresponding index of corporate internal governance (CIG) is chosen as the independent variable, and the observation variable includes the degree of equity checks and balances (DOEB), Management shareholding level (MSL), board independence (BI), Shareholding level of institutional investors (SLOII).

In this paper, the existence of multiple major shareholders is taken as an important variable of equity checks and balances. The specific calculation method is as follows. If the company has at least two major shareholders with more than 10%, the value of equity checks and balances is 1. Otherwise, the value is 0. The management shareholding level is defined as the percentage of the tradable shares, restricted shares and the total share capital held by the management of the sample company. Board independence is defined as the percentage of the number of independent directors in the total number of directors. The shareholding level of institutional investors is defined as the percentage of the total number of institutional investors in the total equity. In addition, this paper chooses the debt maturity structure as the intermediary variable of corporate internal governance affecting the sustainable development of the company, and uses the proportion of long-term debt to the total debt to measure.

To test the H2 hypothesis, which is that internal governance measures can promote the sustainable development of the company by improving the debt maturity structure of the company. In accordance with the intermediation effect test procedures and methods, this paper empirically analyzes the internal governance factors with debt maturity structure as the intermediary effect on the sustainable development of the company. Set the mediating effect regression model as follows.

$$SGR = \alpha_1 + \beta_1 CIG + \varepsilon$$

$$SDM = \alpha_2 + \beta_2 CIG + \varepsilon$$

$$SGR = \alpha_3 + \beta_3 CIG + \beta_4 DM + \varepsilon$$

SGR represents the sustainable development level of the company. CIG represents the variable of the internal governance level of the company. In the specific empirical study, the equity balance level (DOEB), manager shareholding level (MSL), board independence (BI) and institutional investor shareholding level (SLOII) are used respectively. DMS represents the debt maturity structure and is the mediating variable to be tested.

Descriptive statistical results are shown in Table 3.

	observations	Mean	SD	Minimum Value	25 Quartile	Median	75 Quartile	Maximum Value
DOEB	75632	0.40	0.58	0.00	0.00	0.00	1.00	1.00

MSL	75632	0.12	0.63	0.00	0.04	0.92	0.45	0.95
BI	75632	0.37	0.07	0.46	0.57	0.59	0.61	0.69
SLOII	75632	0.19	0.21	0.00	0.08	0.14	0.49	0.87

According to the descriptive statistical results, about 40% of the sample companies have more than two major shareholders holding more than 10%, the average shareholding ratio of the management in the sample companies is 12%, the average proportion of the independent directors in the total board of directors is 37%, and the average institutional investors hold 19% of the shares of the sample companies. The correlation coefficients of variables are shown in Table 4.

	SGR	DOEB	MSL	BI	SLOII
SGR	1.000				
DOEB	0.068***	1.000			
MSL	0.046***	0.049***	1.000		
BI	0.108*	0.369***	0.098***	1.000	
SLOII	0.301***	0.187*	0.297***	0.099*	1.000

*and ** represent statistical significance at the 10%and 5% levels.

From the point of the correlation coefficients between the, the company's internal governance measures four main variables. the degree of ownership balance, management equity level, board independence and institutional investors holding level were significantly related to the sustainable development of the company level coefficient is positive, preliminary verified the company internal governance and the sustainable development level of the positive correlation between. The main measure variables of corporate internal governance level also show significant positive correlation with corporate debt maturity structure. Combined with the positive correlation between the debt maturity structure and the sustainable development level of the company, the codirectional changing relationship among the internal governance of the company, the debt maturity structure and the sustainable development level of the company is reflected in the correlation coefficient test.

VI. CONCLUSION

This chapter studies the impact of corporate debt maturity structure on corporate sustainable development and the specific mechanism of action. Through empirical test of sample data, this paper concludes that there is a positive correlation between the extension of debt maturity structure and the level of sustainable development of companies, and the increase of debt maturity structure can effectively improve the level of sustainable development of companies. Through theoretical analysis, this paper holds that the debt maturity structure will affect the sustainable development level of a company through three mechanisms. First, the improvement of debt maturity structure will increase the level of R&D expenditure of the company, so as to improve the sustainable development level of the company. Second, the improvement of debt maturity structure can alleviate the mismatch degree of the company's balance sheet, so as to improve the sustainable development level of the company. Third, the improvement of debt maturity structure can lead to the improvement of the company's risk bearing level, so as to improve the sustainable development level of the company. At the same time, it also empirically tests that corporate internal governance affects corporate sustainable development by changing corporate debt maturity structure. The four indicators of corporate internal governance measures, namely the level of equity checks and balances, the level of management shareholding, the independence of the board of directors and the level of external investors' shareholding, can enhance the sustainable development level of the company by improving the debt maturity structure.

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